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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.				
10/061,800	01/30/2002	Svetlana V. Shchegrova	10010464-1	1874				
7590                    08/06/2007		<table border="1"><tr><td>EXAMINER</td></tr><tr><td>SHIBUYA, MARK LANCE</td></tr></table>			EXAMINER	SHIBUYA, MARK LANCE		
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AGILENT TECHNOLOGIES, INC. Legal Department, DL429 Intellectual Property Administration P.O. Box 7599 Loveland, CO 80537-0599		<table border="1"><tr><td>ART UNIT</td><td>PAPER NUMBER</td></tr><tr><td colspan="2">1639</td></tr></table>		ART UNIT	PAPER NUMBER	1639		
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		<table border="1"><tr><td>MAIL DATE</td><td>DELIVERY MODE</td></tr><tr><td colspan="2">08/06/2007</td></tr></table>		MAIL DATE	DELIVERY MODE	08/06/2007		PAPER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/061,800	SHCHEGROVA ET AL.
	Examiner Mark L. Shibuya, Ph.D.	Art Unit 1639

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 29 May 2007.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-33 and 49-53 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-33 and 49-53 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date: _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date: _____	6) <input type="checkbox"/> Other: _____

**DETAILED ACTION**

1. Application 10061800, (20030143329 A1): Claims 1-33 and 49-53 are pending and examined. Claims 49-53 were newly added.

**Priority**

2. The instant application, 10/061800, was filed 01/30/2002.
3. The examiner respectfully notes that a previous rejection over of claims 1-33 under 35 USC 102(a), as being anticipated by Agilent Technologies Inc. (Agilent) (GB 2,355,716 A), was withdrawn before appeal, (see, Final Rejection, mailed 6/2/2005, at p. 7), in consideration of the Declaration, entered 3/25/2005, which was filed pursuant to C.F.R. §1.131. In arguments, entered 3/25/2005, appellant's representative stated that the said Declaration demonstrated that the present application was invented prior to February 5, 2001.

**Withdrawn Claim Objections/Rejections**

4. The following objections/rejections to the claims have been withdrawn in view of applicant's arguments and amendments to the claims:

5. Claims 1-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

However, see below, new rejection under 35 U.S.C. 112, second paragraph, which is necessitated by applicant's amendments to the claims.

6. Claims 1-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tisone et al., US 6,063,339, (of record), and in view of Hackleman, US 5,640,183, (of record, IDS entered 10/31/2006), Anderson US 6,076,910, (of record, IDS entered 10/31/2006) and Schultz et al., US 5,985,356.

#### **New Claim Rejections - 35 USC § 112, Second Paragraph**

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-33 and 49-53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant's amendment necessitates the new grounds of rejection.

Independent claim 1 has been amended to state the limitation "wherein the non-error second dispenser dispenses drop only where the identified error first dispenser did not dispense drops in the pattern for the selected path". Other independent claims 6, 25

and 52 state similar language and the same reasons for the instant rejection apply to all of the independent claims, *mutatis mutandis*. The examiner finds that there are at least three interpretations for this language.

First, this language could be construed to mean that the non-error second dispenser does not dispense any drops at all, except “only where” the identified error first dispenser should have, but did not, dispense drops in the said selected path. In other words, the first and second dispensers of a set can only deposit drops in the same locations. If a first dispenser of a set is found to be in error, a non-error second dispenser of the same set, can only dispense where first dispenser failed to cover, and not in a separate location or pattern.

The examiner submits that this construction seems to be consistent, e.g., with applicant’s traversal of the anticipatory rejection, in the Reply at p. 14/18, stating: “Specifically, the ‘non-error’ dispensers of Kumar et al. deposit drops in location other than where an error dispenser in the same set did not deposit a drop.” This argument is repeated against the Hackleman and Anderson publication in the rejection for obviousness, (Reply at p. 15/18 and 16/18).

Secondly, this language could be construed to mean that non-error second dispenser dispenses drops only in those locations on the substrate in the selected path of, e.g., a first group, (of which the identified error first dispense is a member), **only where** the identified error first dispenser did not dispense drops in the pattern for said selected path of the first group. The examiner respectfully notes that this limitation encompasses the dispensing of drops, by the non-error second dispenser, that avoid

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any droplets resulting from a “soft nozzle failure” that resulted in a solution break up into multiple smaller drop during firing of the identified error first dispenser, (see, Invention Disclosure reproduced in the Appendix of the Declaration by all of the instant inventors, entered 3/25/2005, at p. 31, first paragraph [entitled “Problem”]).

### **New Claim Rejections - 35 USC § 112, First Paragraph**

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 1-33 and 49-53 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This rejection is for new matter.

Applicant's amendment necessitates the new grounds of rejection.

Independent claim 1 has been amended to state the limitation “wherein the non-error second dispenser dispenses drops only where the identified error first dispenser did not dispense drops in the pattern for the selected path”. Other independent claims 6, 25 and 52 state similar language and the same reasons for the instant rejection apply to all of the independent claims, *mutatis mutandis*.

The examiner respectfully notes that the specification, at p. 13, lines 30-31, states that “[o]nly one non-error dispenser in each set is needed during array fabrication.”

The claims now encompass methods wherein non-error second dispenser dispenses drops only in those locations on the substrate in the selected path of, e.g., a first group, (of which the identified error first dispense is a member), **only** where the identified error first dispenser did not dispense drops in the pattern for said selected path of the first group. The examiner respectfully notes that this limitation encompasses the dispensing of drops, by the non-error second dispenser, that avoid any droplets resulting from a “soft nozzle failure” that resulted in a solution break up into multiple smaller drop during firing of the identified error first dispenser, (see, Invention Disclosure reproduced in the Appendix of the Declaration by all of the instant inventors, entered 3/25/2005, at p. 31, first paragraph [entitled “Problem”]).

The examiner respectfully submits that this species of method is not described in the specification as filed. The specification does not describe methods wherein a non-error second dispense only to those areas around imperfect deposition of droplets resulting from soft nozzle failures, as described in the inventor’s declaration pursuant to 37 CFR 1.131. Therefore, one of skill in the art would not envision that applicant had possession of the full scope of the claimed invention.

**Maintained Claim Rejections - 35 USC § 102**

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 1-33 and 52 are rejected under 35 U.S.C. 102(a, e) as being anticipated by Kumar et al., US 6,283,572, (9/4/01: 3/4/97; of record, IDS entered 10/31/2006).

This rejection is maintained for the reasons of record as set forth in the previous Office action. That rejection is copied below for the convenience of the reader. This rejection is necessitated by applicant's amendments to the claims.

The claims of the invention set forth methods that utilize a set of non-error redundant dispensers to correct identified error dispensers. The methods claimed generally comprise the steps of loading each set of redundant dispensers with the same fluid; dispensing drops from the dispensers to identify an error; moving first dispensers or a frame of first dispensers along a selected path while dispensing only from non-error dispensers, and moving a redundant dispenser or frame with redundant dispensers along the selected path while dispensing drops from non-error redundant dispensers in the same set as the error first dispensers.

Kumar et al., US 6,283,572, throughout the patent and especially in the background of invention, col. 1, lines 43-50, teach that an inkjet printer prints ink dots at particular locations of an array, thereby reading on fabricating a chemical array. Kumar et al., at col. 7, line 23-col. 8, line 56, Figure 7, Tables I and II, disclose methods comprising redundant nozzles, wherein each nozzle is tested (col. 6, line 15-col. 7, line 8); and wherein malfunctioning dispensers are replaced by redundant dispensers. Kumar et al., col. 1, line 61-col. 2, line 10, teaches pulse inkjet dispensers.

#### Response to Arguments

Applicant, in the Reply at p. 14/18, argues "the 'non-error' dispensers of Kumar et al. deposit drops in location other than where an error dispenser in the same set did not deposit a drop."

Applicant's arguments, entered 5/29/2007, have been fully considered but they are not persuasive. Kumar et al., at Tables I and II teach deposition by redundant dispensers (nozzles 2, 50 and 98 of Table II) that dispense only where (i.e., Row 2) the defective dispenser (nozzle 146) should have, but did not.

#### Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 1-33 and 49-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar et al., US 6,283,572, (9/4/01: 3/4/97; of record, IDS entered 10/31/2006), and in view of MacBeath, "Printing Proteins as Microarrays for High-Throughput Function Determination," Science, New Series, col. 289, No. 5485 (Sep. 8, 2000), pp. 1760-1763.

Applicant's amendment necessitates the new grounds of rejection.

Kumar et al., is relied upon, as in the above rejection for anticipation.

Kumar et al., does not disclose methods comprising fabricating an array that is a biopolymeric array, in claims 49-51 and 53.

MacBeath, "Printing Proteins as Microarrays for High-Throughput Function Determination," Science, New Series, col. 289, No. 5485 (Sep. 8, 2000), pp. 1760-1763, throughout the publication, and at p. 1760, right-hand column, teach using contact printing to fabricate protein arrays.

It would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made to combine methods comprising dispenser technology include the step of identifying an error dispenser as taught by Kumar et al. in the method of MacBeath et al., biopolymeric arrays are fabricated.

One of ordinary skill in the art would have been motivated use printing methods to fabricate biopolymer arrays because MacBeath, in the abstract, teach the use of such methods to permit high-throughput assays of thousands of proteins.

Thus it would have been reasonable for one of ordinary skill in the art to look to the field of printer technology at the time of invention given that microarray production companies were innovating with concepts borrowed from printer technology.

### **Conclusion**

15. Claims 1-33 and 49-53 stand finally rejected.

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Shibuya, whose telephone number is (571) 272-0806. The examiner can normally be reached on M-F, 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Doug Schultz can be reached on (571) 272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Mark L. Shibuya, Ph.D.  
Primary Examiner  
Art Unit 1639